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ABSTRACT

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6 A freeform fabrication method for fabricating a 3-D, multi-material or multi-color object from  
successive layers of a primary body-building powder, at least a modifier material and a binder  
powder in accordance with a computer-aided design of the object. The method includes: (a)  
providing a work surface; (b) feeding a first layer of the primary body-building powder to the  
work surface; (c) operating an electrophotographic powder deposition device to create images of  
at least a modifier powder and a binder powder in accordance with this design; (d) transferring  
these powder images in a desired sequence to the first layer of a body-building powder; (e)  
11 applying energy sources to fuse the binder powder for bonding the powder particles to form a  
first cross-section of the object; (f) repeating the feeding, operating, transferring, and applying  
steps to build a second and successive layers of materials in a layer-wise fashion for forming the  
multiple-layer, multi-material object; and (g) removing un-bonded powder particles, causing the  
3-D object to appear.